

ABSTRACT OF THE INVENTION

[000165] Various methods of using Raman-active or SERS-active probe constructs to detect analytes in biological samples, such as the protein-containing analytes in a body fluid are provided. The probe moieties in the Raman-active constructs are selected to bind to and identify specific known analytes in the biological sample or the probe moieties are designed to chemically interact with functional groups commonly found in certain amino acids so that the invention methods provide information about the amino acid composition of protein-containing analytes or fragments in the samples. In some cases, the Raman-active or SERS-active probe constructs, when used in the invention methods, can identify particular protein-containing analytes or types of such analytes so that a protein profile of a patient sample can be made. When compared to a data base of Raman or SERS spectra of normal samples, a disease state of a patient can be identified using the methods disclosed.